CLAIMS

1. A clone-brushing method of painting in an image, the method comprising:

a) specifying a first world plane in the image;

b) providing a source position and a destination position in the image;

c) identifying a destination region in the image relative to the destination position;

d) determining a source region in the image relative to the first world plane and corresponding to the destination region;

e) transforming image information of the source region relative to the first world plane to image information of the destination region; and

f) copying the transformed image information to the destination region.

2. The method of claim 1, wherein the source region in the image is determined via a homography defined by the first world plane.

3. The method of claim 1, wherein step a) comprises specifying two sets of parallel lines.

4. The method of claim 1, wherein step e) further comprises a bilinear interpolation of image information in the source region relative to the first world plane.

5. The method of claim 1 further comprising:

providing a first color sample region for the source region;

providing a second sample color region for the destination region; and

computing a color ratio between the first color sample region and the second color sample region,

wherein step e) further comprises applying the color ratio to the image information of the source region.

6. The method of claim 5, wherein the color ratio is computed using Gaussian weighted averages of the first and second sample color regions.

7. The method of claim 5, wherein the first color sample region is provided with respect to the first world plane.

8. The method of claim 1, further comprising specifying a second world plane and a relative scale factor in the image, wherein:

step d) comprises determining a source region in the image relative to the first world plane and corresponding to the destination region relative to the second world plane and the relative scale factor; and

step e) comprises transforming the image information of the source region relative to the first world plane to image information of the destination region relative to the second world plane and the relative scale factor.

9. The method of claim 8, wherein specifying the second world plane comprises specifying two sets of parallel lines.

10. The method of claim 8, wherein specifying the relative scale factor comprises specifying a line segment of unit length relative the first world plane and specifying a line segment of unit length relative to the second world plane.

11. A clone-brushing method of painting in an image, the method comprising:

a) providing a first color sample region;

b) providing a second color sample region;

c) computing a color ratio between the first color sample region and the second color sample region;

d) providing a source position in the image;

e) providing a destination position in the image;

f) identifying a destination region in the image relative to the destination position;

g) determining a source region in the image corresponding to the destination region;

h) applying the color ratio to image information of the source region and transforming the image information of the source region to image information of the destination region; and

i) copying the transformed image information to the destination region.

12. The method of claim 11, wherein the color ratio is computed using Gaussian weighted averages of the first and second sample color regions.

13. A clone-brushing method of painting in an image, the method comprising:

a) providing a source position in the image;

b) providing an initial destination position in the image;

c) determining a snapped destination position;

d) identifying a destination region in the image relative to the snapped destination position;

e) determining a source region in the image corresponding to the destination region;

f) transforming image information of the source region to image information of the destination region; and

g) copying the transformed image information to the destination region.

14. The method of claim 13, wherein step c) comprises searching a collection of candidate destination positions.

15. The method of claim 14, wherein step c) further comprises applying a quality metric to the source position, applying the quality metric to the candidate destination positions, and determining a snapped destination position from the collection of candidate destination positions whose quality is similar to the quality of the source position.

16. The method of claim 15, wherein the quality metric is a Gaussian-weighted color average for a region surrounding the position.

17. The method of claim 15, wherein the quality metric compensates for regional color variation by applying a color ratio.

18. A system for clone-brushing in an image, the system comprising:
a computer comprising a processor, memory, and a display, the memory containing instructions that, when executed by the processor, cause the computer to:
receive an input image;
interact with a user to specify a first world plane in the image;
interact with a user to provide a source position and a destination position in the image;
interact with a user to identifying a destination region in the image relative to the destination position;
determine a source region in the image relative to the first world plane and corresponding to the destination region;
transform image information of the source region relative to the first world plane to image information of the destination region; and
copy the transformed image information to the destination region.

19. The system of claim 18, wherein the instructions, when executed by the processor, further cause the computer to interact with the user to specify a world plane by drawing two sets of parallel lines.

20. The system of claim 18, wherein the instructions, when executed by the processor, further cause the computer to interact with the user to:
provide a first color sample region for the source region;
provide a second sample color region for the destination region; and
compute a color ratio between the first color sample region and the second color sample region,

7 wherein step the color ratio is applied to the image information of the source region.